



National Standards Authority of Ireland

STANDARD

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FAT AND OIL DERIVATIVES - FATTY ACID

METHYL ESTERS (FAME) -

DETERMINATION OF ACID VALUE

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English version

**Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) -
Determination of acid value**

Produits dérivés des corps gras - Esters méthyliques
d'acides gras (EMAG) - Détermination de l'indice d'acide

Erzeugnisse aus pflanzlichen und tierischen Fetten und
Ölen - Fettsäure-Methylester (FAME) - Bestimmung der
Säurezahl

This European Standard was approved by CEN on 2 January 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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EN 14104:2003 (E)

Foreword

This document (EN 14104:2003) has been prepared by Technical Committee CEN/TC 307 "Oilseeds, vegetable and animal fats and oils and their by-products - Methods of sampling and analysis", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2003 and conflicting national standards shall be withdrawn at the latest by October 2003.

This document has been prepared under Mandate M/245 on Fatty Acid Methyl ester (FAME) given to CEN by the European Commission and the European Free Trade Association.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard is based on the EN ISO 660 [1] which was specifically adapted for the determination of acid value of fatty acid methyl esters (FAME).

EN 14104:2003 (E)

1 Scope

This European Standard specifies one titrimetric method for the determination of acid value in light coloured Fatty Acid Methyl Esters, hereinafter referred as FAME.

It allows the determination of acid value within a range of 0,10 mg KOH/g to 1,00 mg KOH/g.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 661, *Animal and vegetable fats and oils - Preparation of test sample (ISO 661:1989)*.

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)*.

3 Terms and definitions

For the purposes of this European Standard, the following term and definition apply.

3.1 acid value

number of milligrams of potassium hydroxide required to neutralise the free fatty acids present in 1 g of FAME, when determined in accordance with the procedure specified in this European Standard

Acid value is expressed in milligrams of potassium hydroxide per gram of sample.

NOTE If the sample contains mineral acids these are, by convention determined as a part of total acid value. This method does not allow to distinguish between weak (from free fatty acids) and strong (from mineral acids, if present) acidity.

4 Principle

A test portion is dissolved in a mixed solvent and titrated with a diluted solution of potassium hydroxide, using phenolphthalein as an indicator in order to detect the titration end point.

5 Reagents

Use only reagents of recognised analytical grade and water of grade 3 in accordance with EN ISO 3696.

5.1 Diethyl ether and 95 % ethanol, 1 + 1 mixture by volume.

WARNING Diethyl ether is very flammable and may form explosive peroxides. Use with great caution.

Neutralise, just before use, by adding the potassium hydroxide solution (5.2) in the presence of 0,3 ml of phenolphthalein alcoholic solution (5.3) per 100 ml of solvent mixture.

If it is not possible to use diethyl ether, a mixed solvent may be used as follows:

- toluene and 95 % (V/V) ethanol, 1 + 1 mixture by volume;
- toluene and 99 % (V/V) 2-propanol, 1 + 1 mixture by volume.

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